

**Element Performance Inspection (EPI) Data Collection Tool**  
**5.1.8 Extended Operations (ETOPS) (AW)**  
**Revision#:3 Revision Date:09/15/2009**

**ELEMENT SUMMARY INFORMATION**

**Scope of Element:**

**Purpose** (operator's responsibility): To ensure the operator's Continuous Airworthiness Maintenance Program (CAMP) for Extended Operations (ETOPS) will support safe and reliable operations.

**Objective** (FAA oversight responsibility): To determine:

- The effectiveness of the operator's procedures in meeting the desired output of the process,
- If the operator follows its procedures, controls, process measurements, and interfaces, and
- If there were any changes in the personnel identified by the operator as having responsibility and/or authority, for the Extended Operations (ETOPS) process.

**Specific Instructions:**

EPIs 5.1.8 AW and OP should be worked concurrently to assure complete evaluation.

**Related EPIs:**

Intentionally left blank

**SUPPLEMENTAL INFORMATION**

**Regulatory Requirements:**

D.086, Operations Specifications  
119.43, Certificate holder's duty to maintain operations specifications.  
121.135, Manual contents  
121.162, ETOPS Type Design Approval Basis  
121.367, Maintenance, preventive maintenance, and alterations programs.  
121.369, Manual requirements.  
121.373, Continuing analysis and surveillance.  
121.374, Continuous airworthiness maintenance program (CAMP) for two-engine ETOPS

**Related CFRs & FAA Policy/Guidance:**

**Related CFRs:**

Intentionally left blank

**FAA Policy/Guidance:**

FAA Order 8900.1, Volume 4, Chapter 6, Section 2  
FAA Order 8900.1, Volume 6, Chapter 2, Section 37  
AC 120-42B, Extended Operations (ETOPS and Polar Operations)

EPI SECTION 1 - PERFORMANCE OBSERVABLES	
<b>Objective:</b> The tasks and questions in this section of the EPI are designed to assist in determining if the operator follows its written procedures and controls and meets the established performance measures of the process. The initial series of questions address the output(s) of the process and the last several questions address whether or not various aspects of the process were followed.	
<b>Tasks</b>	
	The inspector shall accomplish the following tasks:
1	Review the information listed in the Supplemental Information Section of this DCT.
2	Review policies, procedures, instructions, and information for this element.
3	Review the most recently accomplished Safety Attribute Inspection (SAI) for this element.
4	Observe the performance of this element to gain an understanding of the procedures, instructions, and information.
5	Discuss this element with the personnel who perform the duties and responsibilities required by the process.

Questions		
1.1	Were aircraft used in ETOPS operations configured and maintained according to the conditions and limitations of the ETOPS Continuous Airworthiness Maintenance Program (CAMP), and operations specifications D086?  Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
1.2	Was the ETOPS maintenance document available for use by all personnel involved with ETOPS?  Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
1.3	Were maintenance personnel who maintained aircraft used in ETOPS operations qualified and trained in the policy and procedures of the operator's CAMP and in the specific procedures of the ETOPS CAMP?  Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
1.4	Were pre-departure service checks (PDSC) performed appropriately?  Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental  <i>Related Performance JTIs:</i> 1. Verify the PDSC are performed immediately before each ETOPS flight. (JTI ID: 78) <i>Sources:</i> 121.374(b)(1); Advisory Circular 120-42B, Chapter 3	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable

	<ol style="list-style-type: none"> <li>2. Verify the PDSC reviewed the applicable maintenance records to determine the overall status of the airplane. (JTI ID: 79) <i>Sources:</i> 121.374(b)(2)(i); Advisory Circular 120-42B, Chapter 3</li> <li>3. Verify the PDSC reviewed the applicable maintenance records to determine the overall status of the airplane. (JTI ID: 80) <i>Sources:</i> 121.374(b)(2)(ii); Advisory Circular 120-42B, Chapter 3</li> <li>4. Verify the PDSC the interior/exterior inspection was performed adequately and included a determination of engine and APU oil levels and consumption rates. (JTI ID: 81) <i>Sources:</i> 121.374(b)(2)(iii); Advisory Circular 120-42B, Chapter 3</li> <li>5. Verify an ETOPS certified person accomplished the ETOPS PDSC. (JTI ID: 82) <i>Sources:</i> 121.374(b)(3); 121.374(b)(4)(i)</li> <li>6. Verify the PDSC was certified by signature as being properly completed by an authorized signatory person. (JTI ID: 83) <i>Sources:</i> 121.374(b)(3); 121.374(b)(4)(ii)</li> </ol>	
1.5	<p>Were limitations on dual maintenance monitored and controlled effectively?</p> <p>Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental</p> <p><i>Related Performance JTIs:</i></p> <ol style="list-style-type: none"> <li>1. Verify that scheduled or unscheduled maintenance was not being performed on more than one significant system listed in the maintenance document. (JTI ID: 84) <i>Sources:</i> 121.374(c)(1)</li> <li>2. Verify that as a result of unforeseen circumstances maintenance performed on more than one significant system was performed by a different technician or if by the same technician was under the direct supervision of a second qualified individual and a qualified individual conducted a ground verification test and any in-flight verification test necessary. (JTI ID: 85) <i>Sources:</i> 121.374(c)(2)</li> </ol>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
1.6	<p>Was the ETOPS ground and in-flight verification program effective and properly used?</p> <p>Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental</p> <p><i>Related Performance JTIs:</i></p> <ol style="list-style-type: none"> <li>1. Verify the initiation of the verification program by the appropriate person. (JTI ID: 86) <i>Sources:</i> 121.374(d); Advisory Circular 120-42B, Chapter 3; 8900.1 Volume 4, Chapter 6, Section 2</li> <li>2. Verify potential problems were satisfactorily resolved. (JTI ID: 87) <i>Sources:</i> 121.374(d); Advisory Circular 120-42B, Chapter 3; 8900.1 Volume 4, Chapter 6, Section 2</li> <li>3. Verify ground and in-flight verification was satisfactorily completed. (JTI ID: 88) <i>Sources:</i> 121.374(d); Advisory Circular 120-42B, Chapter 3; 8900.1</li> </ol>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable

	<p>Volume 4, Chapter 6, Section 2</p> <p>4. Verify the crew is fully briefed on the verification action that is required in-flight. (JTI ID: 89) <i>Sources:</i> 121.374(d); Advisory Circular 120-42B, Chapter 3; 8900.1 Volume 4, Chapter 6, Section 2</p> <p>5. Verify in-flight verification actions on revenue flights were documented complete upon reaching the ETOPS entry point. (JTI ID: 90) <i>Sources:</i> 121.374(d); Advisory Circular 120-42B, Chapter 3; 8900.1 Volume 4, Chapter 6, Section 2</p>	
1.7	<p>Did an appropriately trained mechanic who is ETOPS qualified accomplish and certify all identified ETOPS-specific tasks?</p> <p>Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
1.8	<p>Was the centralized maintenance control for ETOPS effective and properly used?</p> <p>Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
1.9	<p>Was the ETOPS parts control program effective and properly used?</p> <p>Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
1.10	<p>Was propulsion system monitoring effective and properly used?</p> <p>Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental</p> <p><i>Related Performance JTIs:</i></p> <ol style="list-style-type: none"> <li>1. Verify comprehensive reviews to identify common cause effects and system errors based on computed in-flight shut downs. (JTI ID: 91) <i>Sources:</i> 121.374(i); Advisory Circular 120-42B, Chapter 3</li> <li>2. Verify common cause effect and system error review if the IFSD rate (computed on a 12 month rolling average) exceeds a rate of .05 per 1,000 engine hours for ETOPS up to and including 120 minutes. (JTI ID: 92) <i>Sources:</i> 121.374(i); Advisory Circular 120-42B, Chapter 3</li> <li>3. Verify common cause effect and system error review if a rate of .03 per 1,000 engine hours for ETOPS beyond 120 minutes up to and including 207 minutes in the North Pacific Area of Operation and up to including 180 minutes elsewhere. (JTI ID: 93) <i>Sources:</i> 121.374(i); Advisory Circular 120-42B, Chapter 3</li> <li>4. Verify common cause effect and system error review if a rate of .02 per 1,000 engine hours for ETOPS beyond 207 minutes in the North Pacific Area of Operation and beyond 180 minutes elsewhere. (JTI ID: 94) <i>Sources:</i> 121.374(i); Advisory Circular 120-42B, Chapter 3</li> <li>5. Verify a report of investigation and corrective actions taken were submitted to the CHDO within 30 days if the rates were exceeded. (JTI ID: 95)</li> </ol>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable

	<i>Sources: 121.374(i); Advisory Circular 120-42B, Chapter 3</i>	
1.11	<p>Was the engine condition monitoring program effective and properly used?</p> <p>Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental</p> <p><i>Related Performance JTIs:</i></p> <ol style="list-style-type: none"> <li>1. Verify parameters are being monitored at an early stage. (JTI ID: 96) <i>Sources: 121.374(j); Advisory Circular 120-42B, Chapter 3</i></li> <li>2. Verify data is being collected. (JTI ID: 97) <i>Sources: 121.374(j); Advisory Circular 120-42B, Chapter 3</i></li> <li>3. Verify the data is being analyzed and corrective action is being implemented to ensure engine limit margins are maintained so that a prolonged engine-inoperative diversion can be conducted at approved power levels and in all environmental conditions. (JTI ID: 98) <i>Sources: 121.374(j); Advisory Circular 120-42B, Chapter 3</i></li> </ol>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
1.12	<p>Did the engine condition monitoring program monitor parameters, collect and analyze data, and provide corrective action to ensure engine limit margins were maintained so that a prolonged engine-inoperative diversion could be conducted at approved power levels and in all environmental conditions?</p> <p>Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
1.13	<p>Was the engine oil consumption monitoring program effective and properly used?</p> <p>Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
1.14	<p>Were in-flight APU starts performed at the appropriate times to ensure cold soak in-flight start and run reliability?</p> <p>Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Applicable <input type="checkbox"/> Not Observable
1.15	<p>Did the aircraft meet all requirements for configuration, maintenance, and procedures (CMP) for extended-range operations in accordance with the operator's design?</p> <p>Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Applicable <input type="checkbox"/> Not Observable
1.16	<p>Using audits and analyses did the event-oriented reliability program or the Continuous Analysis and Surveillance System supplemented for ETOPS measure performance and effectiveness and provide corrective actions and follow-up surveillance activities?</p> <p>Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
1.17	Was the FAA certificate holding district office (CHDO) notified within 96 hours of	<input type="checkbox"/> Yes

	<p>the required abnormal events?</p> <p>Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental</p> <p><i>Related Performance JTIs:</i></p> <ol style="list-style-type: none"> <li>1. Verify the program reports to the certificate holding district office (CHDO) within 96 hours in-flight engine shut downs (IFSD). (JTI ID: 99) <i>Sources:</i> 121.374(h); Advisory Circular 120-42B, Chapter 3</li> <li>2. Verify the program reports to the certificate holding district office (CHDO) within 96 hours diversions and turn backs for failures, malfunctions, or defects associated with any airplane or engine system. (JTI ID: 100) <i>Sources:</i> 121.374(h); Advisory Circular 120-42B, Chapter 3</li> <li>3. Verify the program reports to the certificate holding district office (CHDO) within 96 hours uncommanded power or thrust changes or surges. (JTI ID: 101) <i>Sources:</i> 121.374(h); Advisory Circular 120-42B, Chapter 3</li> <li>4. Verify the program reports to the certificate holding district office (CHDO) within 96 hours inability to control the engine or obtain the desired power. (JTI ID: 102) <i>Sources:</i> 121.374(h); Advisory Circular 120-42B, Chapter 3</li> <li>5. Verify the program reports to the certificate holding district office (CHDO) within 96 hours inadvertent fuel loss, unavailability or uncorrectable fuel imbalance in flight. (JTI ID: 103) <i>Sources:</i> 121.374(h); Advisory Circular 120-42B, Chapter 3</li> <li>6. Verify the program reports to the certificate holding district office (CHDO) within 96 hours failures, malfunction, defects with ETOPS significant systems. (JTI ID: 104) <i>Sources:</i> 121.374(h); Advisory Circular 120-42B, Chapter 3</li> <li>7. Verify the program reports to the certificate holding district office (CHDO) within 96 hours any event that would jeopardize the safe flight and landing. (JTI ID: 105) <i>Sources:</i> 121.374(h); Advisory Circular 120-42B, Chapter 3</li> <li>8. Verify procedures to investigate the cause of each above event and submit findings and corrective action to the CHDO. The report must include information specified in 121.703(e). (JTI ID: 106) <i>Sources:</i> 121.374(h); Advisory Circular 120-42B, Chapter 3</li> </ol>	<input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
1.18	<p>Was the centralized maintenance control for ETOPS effective and properly used?</p> <p>Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
1.19	<p>Was maintenance accomplished in accordance with the approved ETOPS maintenance program?</p> <p>Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
1.20	<p>Did the operator follow policies, procedures, instructions, and information for this element?</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable

	Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental	
1.21	Did the operator follow controls for this element?  Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
1.22	Did the records for this element comply with the instructions?  Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental  <i>Related Performance JTIs:</i> 1. Verify that ETOPS related tasks were identified on the operator's routine work forms and related instructions in accordance with the operator's design. (JTI ID: 52) <i>Sources:</i> Advisory Circular 120-42B, Chapter 3	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
1.23	Were the process measurements for this element:  <ul style="list-style-type: none"> <li>• Effective in identifying actual or potential problems, and</li> <li>• Did the operator identify and take corrective action for identified problems?</li> </ul> Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
1.24	Were the observed interfaces identified and documented by the operator?  Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
1.25	Were the observed interfaces, identified and documented by the operator, adequate to ensure that the intended results were achieved?  Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable

EPI SECTION 1 - PERFORMANCE OBSERVABLES Drop-Down Menu	
1.	Personnel.
2.	Tools and Equipment.
3.	Technical Data.
4.	Policies, procedures, instructions, or information.
5.	Materials.
6.	Facilities.
7.	Controls.
8.	Process Measures.
9.	Interfaces.

10.	Desired Outcome.
11.	Other.



## EPI SECTION 2 - MANAGEMENT RESPONSIBILITY & AUTHORITY OBSERVABLES

### Objective:

Answers to questions in this section address the responsibility and authority of the people who manage this process. They will help determine if there is a qualified and knowledgeable person who:

- Is responsible for the process
- Is answerable for the quality of the process
- Has the authority to establish and modify the process.

**Note:** The person with the authority may or may not be the person with the responsibility.

### Tasks

	To meet this objective, the inspector must accomplish the following tasks:
1	Identify the person who has overall responsibility for the processes associated with this element.
2	Identify the person who has overall authority for the processes associated with this element.
	NOTE: If there have been no major changes in key personnel or the program since the last SAI or EPI was accomplished, then only answer questions 1 and 2 below, and select "No Change" (N/C) for the remaining questions. If changes have occurred that affect the responsibility or authority attributes for this element, then accomplish all tasks and answer all questions.
3	Review the duties and responsibilities for the person(s) who manage the processes associated with this element.
4	Review the appropriate organizational chart.
5	Discuss the processes associated with this element with the management personnel identified in tasks 1 and 2.
6	Evaluate the qualifications and work experience of the management personnel identified in tasks 1 and 2.

### Questions

2.1	Is the identified person who is responsible for the quality of the processes associated with this element actively filling that position?  Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
2.2	Is the identified person who has authority to establish and modify the operator's policies, procedures, instructions and information for the processes associated with this element actively filling that position?  Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
2.3	Does the responsible person know that he/she has responsibility for the processes associated with this element?  Updated: Rev # 3 on 09/15/2009	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable

	Kind Of Question: Flag, Supplemental	
2.4	Does the person with authority know that he/she has authority for the processes associated with this element?  Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
2.5	Does the person with responsibility for the processes associated with this element meet the qualification and work experience standards?  Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
2.6	Does the person with authority to establish and modify the processes associated with this element meet the qualification and work experience standards?  Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
2.7	Does the person with responsibility understand the controls, process measurements, and interfaces associated with this element?  Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
2.8	Does the person with authority understand the controls, process measurements, and interfaces associated with this element?  Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
2.9	Does the responsible person know who has authority to establish and modify the processes associated with this element?  Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable
2.10	Does the individual with authority know who has the responsibility for the processes associated with this element?  Updated: Rev # 3 on 09/15/2009 Kind Of Question: Flag, Supplemental	<input type="checkbox"/> Yes <input type="checkbox"/> No, Explain <input type="checkbox"/> Not Observable

<b>EPI SECTION 2 - MANAGEMENT RESPONSIBILITY &amp; AUTHORITY OBSERVABLES</b>	
<b>Drop-Down Menu</b>	
1.	Assignment of responsibility.
2.	Assignment of authority.
3.	Does not understand policies, procedures, instructions, or information.
4.	Does not understand controls.
5.	Does not understand process measurements.
6.	Does not understand interfaces.
7.	Span of control.
8.	Position vacant.
9.	Other.

